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<120> Polymorphisms in the human CYP3A4 and CYP3A7 genes and
their use in diagnostic and therapeutic applications

<130> D 2145 PCT

<140> US 10/070,587

<141> 02002-03-08

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<151> 1999-09-10

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<400> 129
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 1 5 10 15

Trp

<210> 130
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<220>
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 <222> (79)..(177)

<400> 130
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ctgtttttt cacacagc ttt tat gat ggt caa cag cct gtg ctg gct atc 111
 Phe Tyr Asp Gly Gln Gln Pro Val Leu Ala Ile
 1 5 10

aca gat cct gac atg atc aaa aca gtg cta gtg aaa gaa tgt tat tct 159
 Thr Asp Pro Asp Met Ile Lys Thr Val Leu Val Lys Glu Cys Tyr Ser
 15 20 25

gtc ttc aca aac cgg agg gtaagcattc atgtgttgaa attaaaatac 207
 Val Phe Thr Asn Arg Arg
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tgattgatta aatttatatt ttgaaattct tatatattca tagacagttg cctaaaaaat 267

gtccaggaag gtccacgtc cacttc 293

<210> 131
 <211> 33
 <212> PRT
 <213> Homo sapiens

<400> 131
 Phe Tyr Asp Gly Gln Gln Pro Val Leu Ala Ile Thr Asp Pro Asp Met
 1 5 10 15

Ile Lys Thr Val Leu Val Lys Glu Cys Tyr Ser Val Phe Thr Asn Arg
 20 25 30

Arg

<210> 132
 <211> 236
 <212> DNA
 <213> Homo sapiens

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<220>
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 <222> (62)..(175)

<220>
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 <222> (176)..(236)

<220>
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 <222> (62)..(175)

<400> 132

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g cct ttt ggt cca gtg gga ttt atg aaa agt gcc atc tct ata gct gag 109

Pro Phe Gly Pro Val Gly Phe Met Lys Ser Ala Ile Ser Ile Ala Glu

1 5 10 15

gat gaa gaa tgg aag aga tta cga tca ttg ctg tct cca acc ttc acc 157

Asp Glu Glu Trp Lys Arg Leu Arg Ser Leu Leu Ser Pro Thr Phe Thr

20 25 30

agt gga aaa ctc aag gag gtatgaaaaa aacatgagtt ttaataagaa 205

Ser Gly Lys Leu Lys Glu

35

acttaaagaa tgaatctggt ggggacaggt a

236

<210> 133

<211> 38

<212> PRT

<213> Homo sapiens

<400> 133

Pro Phe Gly Pro Val Gly Phe Met Lys Ser Ala Ile Ser Ile Ala Glu

1 5 10 15

Asp Glu Glu Trp Lys Arg Leu Arg Ser Leu Leu Ser Pro Thr Phe Thr

20 25 30

Ser Gly Lys Leu Lys Glu

35

<210> 134

<211> 393

<212> DNA

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<222> (99)..(247)

<220>

<221> intron

<222> (248)..(393)

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ggtgctgatt ttaattttcc acatctttct ccactcagc gtc ttt ggg gcc tac 114

Val Phe Gly Ala Tyr

1 5

agc atg gat gtg atc act agc aca tca ttt gga gtg aac atc gac tct 162

Ser Met Asp Val Ile Thr Ser Thr Ser Phe Gly Val Asn Ile Asp Ser

10 15 20

ctc aac aat cca caa gac ccc ttt gtg gaa aac acc aag aag ctt tta 210

Leu Asn Asn Pro Gln Asp Pro Phe Val Glu Asn Thr Lys Lys Leu Leu

25 30 35

aga ttt gat ttt ttg gat cca ttc ttt ctc tca ata agtatgtgga 256

Arg Phe Asp Phe Leu Asp Pro Phe Phe Leu Ser Ile

40 45

ctactatttc cttttattta tcttkctctc ttaaaaataa ctgctttatt gagatataaa 316

tcaccatgta attcatccac ttaaaatata cagttcagtg attttagta catttgaaga 376

tatgtgtgac catcatc 393

<210> 135

<211> 49

<212> PRT

<213> Homo sapiens

<400> 135

Val Phe Gly Ala Tyr Ser Met Asp Val Ile Thr Ser Thr Ser Phe Gly

1 5 10 15

Val Asn Ile Asp Ser Leu Asn Asn Pro Gln Asp Pro Phe Val Glu Asn

<210> 137
 <211> 22
 <212> PRT
 <213> Homo sapiens

<400> 137
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 1 5 10 15
 Glu Thr Glu Ser His Lys
 20

<210> 138
 <211> 399
 <212> DNA
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<220>
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 <222> (112)..(336)

<400> 138
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 aaagttaatt caaaaatctc aatttatcca aatctgtttc ttcttttca g gca cca 117
 Ala Pro
 1

ccc acc tat gat act gtg cta cag atg gag tat ctt gac atg gtg gtg 165
 Pro Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met Val Val
 5 10 15

aat gaa acg ctc aga tta ttc cca att gct atg aga ctt gag agg gtc 213
 Asn Glu Thr Leu Arg Leu Phe Pro Ile Ala Met Arg Leu Glu Arg Val
 20 25 30

tgc aaa aaa gat gtt gag atc aat ggg atg ttc att ccc aaa ggg tgg 261
 Cys Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys Gly Trp
 35 40 45 50

gtg gtg atg att cca agc tat gct ctt cac cgt gac cca aag tac tgg 309
 Val Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys Tyr Trp
 55 60 65

asa gag cct gag aag ttc ctc cct gaa aggtaggagg ccctgggaa 356
 Xaa Glu Pro Glu Lys Phe Leu Pro Glu
 70 75

gggagccctc cctgaaccag cctggttcaa gcatattctg cct 399

<210> 139
 <211> 75
 <212> PRT
 <213> Homo sapiens

<400> 139
 Ala Pro Pro Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met
 1 5 10 15

Val Val Asn Glu Thr Leu Arg Leu Phe Pro Ile Ala Met Arg Leu Glu
 20 25 30

Arg Val Cys Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys
 35 40 45

Gly Trp Val Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys
 50 55 60

Tyr Trp Xaa Glu Pro Glu Lys Phe Leu Pro Glu
 65 70 75

<210> 140
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: artificial

<400> 140

ccagtatgag ttgttctctg g 21

<210> 141

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: artificial

<400> 141

aggcagaata tgcttgaacc aggc 24

<210> 142

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: artificial
sequence

<400> 142

gaagtggacg tggaaccttc ctggac 26

<210> 143

<211> 304

<212> DNA

<213> Homo sapiens

<400> 143

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ctgtttttt cacacagctt ttatgatggc caacagcctg tgctggctat cacagatcct 120

gacatgatca aaacagtgc agtgaaagaa tgttattctg tcttcacaaa ccggagggta 180

agcattcatg tgttgaaatt aaaatactga ttgattaaat ttatatattg aaattcttat 240

atattcatag acagttgcct aaaaaatgtc caggaagggt ccacgtccac ttcactctgt 300

cccc

304

<210> 144

<211> 236

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

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<222> (176)..(236)

<220>

<221> exon

<222> (62)..(175)

<400> 144

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g cct ttt ggt cca gtg gga ttt atg aaa agt gcc atc tct ata gct gag 109

Pro Phe Gly Pro Val Gly Phe Met Lys Ser Ala Ile Ser Ile Ala Glu

1 5 10 15

gat gaa gaa tgg aag aga tta caa tca ttg ctg tct cca acc ttc acc 157

Asp Glu Glu Trp Lys Arg Leu Gln Ser Leu Leu Ser Pro Thr Phe Thr

20 25 30

agt gga aaa ctc aag gag gtatgaaaat aacatgagtt ttaataagaa 205

Ser Gly Lys Leu Lys Glu

35

acttaaagaa tgaatctggt ggggacaggt a

236

<210> 145

<211> 38
<212> PRT
<213> Homo sapiens

<400> 145
Pro Phe Gly Pro Val Gly Phe Met Lys Ser Ala Ile Ser Ile Ala Glu
1 5 10 15
Asp Glu Glu Trp Lys Arg Leu Gln Ser Leu Leu Ser Pro Thr Phe Thr
20 25 30
Ser Gly Lys Leu Lys Glu
35

<210> 146
<211> 379
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (188)..(274)

<400> 146
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gtacagaaaa cacatcacia aattcattat aaaatgtcac ttactgctcc atgctgggga 120
aagccatgtc cttctgggac tagagtctgc acatttaact atgggtggtg ttgtgtttg 180
tgcttag atg gtc cct atc att gcc cag tat gga gat gtg ttg gtg aga 229
Met Val Pro Ile Ile Ala Gln Tyr Gly Asp Val Leu Val Arg
1 5 10
aat ctg agg cgg gaa gca gag aca ggc aag cct atc acc ttg aaa 274
Asn Leu Arg Arg Glu Ala Glu Thr Gly Lys Pro Ile Thr Leu Lys
15 20 25
gagtaagtag aagcgcagcc atgggggttct gagctgtcat gaaccctcc agctgcctgc 334
catggagctg atattcctgc tgttgggtta ttccagtgc cagac 379

<210> 147

<211> 29
<212> PRT
<213> Homo sapiens

<400> 147
Met Val Pro Ile Ile Ala Gln Tyr Gly Asp Val Leu Val Arg Asn Leu
1 5 10 15
Arg Arg Glu Ala Glu Thr Gly Lys Pro Ile Thr Leu Lys
20 25

<210> 148
<211> 379
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (188)..(274)

<400> 148
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gtacagaaaa cacatcacia aattcattat aaaatgtcac ttactgtccc atgctgggga 120
aagccatgtc cttctgggac tagagtctgc acatttaact atgggtgggtg ttgtgttttg 180
tgcttag atg gtc cct atc att gcc cag tat gga gat gtg ttg gtg aga 229
Met Val Pro Ile Ile Ala Gln Tyr Gly Asp Val Leu Val Arg
1 5 10
aat ctg agg cgg gaa gca gag aca ggc aag cct gtc acc ttg aaa 274
Asn Leu Arg Arg Glu Ala Glu Thr Gly Lys Pro Val Thr Leu Lys
15 20 25
cagtaagtag aagcgcagcc atgggggttct gagctgtcat gaaccctcc agctgcctgc 334
catggagctg atattcctgc tgttggggtta ttccagtgc cagac 379

<210> 149
<211> 29
<212> PRT
<213> Homo sapiens

<400> 149

Met Val Pro Ile Ile Ala Gln Tyr Gly Asp Val Leu Val Arg Asn Leu

1 5 10 15

Arg Arg Glu Ala Glu Thr Gly Lys Pro Val Thr Leu Lys

20 25

<210> 150

<211> 379

<212> DNA

<213> Homo sapiens

<400> 150

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gtacagaaaa cacatcacia aattcattat aaaatgtcac ttactgctcc atgctgggga 120
aagccatgct cttctgggac tagagtctgc acatttaact atgggtggtg ttgtgtttg 180
tgcttagatg gtcctatca ttgccagta tggagatgtg ttggtgagaa atctgaggcg 240
ggaagcagag acaggcaagc ctgtcacctt gaaagagtaa gtagaagcgc agctatgggg 300
ttctgagctg tcatgaacce ctccagctgc ctgccatgga gctgatattc ctgctgttgg 360
gttattccag tgaccagac 379

<210> 151

<211> 379

<212> DNA

<213> Homo sapiens

<400> 151

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gtacagaaaa cacatcacia aattcattat aaaatgtcac ttactgctcc atgctgggga 120
aagccatgct cttctgggac tagagtctgc acatttaact atgggtggtg ttgtgtttg 180
tgcttagatg gtcctatca ttgccagta tggagatgtg ttggtgagaa atctgaggcg 240
ggaagcagag acaggcaagc ctgtcacctt gaaagagtaa gtagaagcgc agccatgggt 300
ttctgagctg tcatgaacce ctccagctgc ctgccatgga gctgatattc ctgctgttgg 360
gttattccag tgaccagac 379

<210> 152

<211> 379

<212> DNA

<213> Homo sapiens

<400> 152

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gtacagaaaa cacatcacia aattcattat aaaatgtcac ttactgtccc atgctgggga 120
aagccatgtc cttctgggac tagagtctgc acatttaact atgggtggtg ttgtgtttg 180
tgcttagatg gtcctatca ttgccagta tggagatgtg ttggtgagaa atctgaggcg 240
ggaagcagag acaggcaagc ctgtcacctt gaaagagtaa gtagaagcgc agccatgggg 300
ttctgagctg tcatgaaccc ctccagcggc ctgccatgga gctgatattc ctgctgttg 360
gttattccag tgaccagac 379

<210> 153
<211> 431
<212> DNA
<213> Homo sapiens

<400> 153
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tagatttctc ttcctctaaa ctgtgatgcc ctacattgat ctgatttacc taaaatgtct 120
ttctctctct ttcagctctg tccgatctgg agctcgtggc ccaatcaatt atctttattt 180
ttgctggcta tgaaccacg agcagtgttc tctccttcat tatgtatgaa ctggccactc 240
accctgatgt ccagcagaaa ctgcaggagg aaattgatgc agttttaccc aataaggtga 300
gtggatgata catggagaag gagggaggag gtgaaacctt agcaaaaatg cctcctcacc 360
acttcccagg agaattttta taaaagcat aatcactgat tcttccactg actctatgta 420
ggaaggtct g 431

<210> 154
<211> 574
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (110)..(334)

<400> 154
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aagttaattc aaaatctcaa ttatccaaa tctgttctgt tcttccag gca cca ccc 118
Ala Pro Pro
1

acc tat gat act gtg cta cag atg gag tat ctt gac atg gtg gtg aat 166
Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met Val Val Asn
5 10 15

gaa atg ctc aga tta ttc cca att gct atg aga ctt gag agg gtc tgc 214
Glu Met Leu Arg Leu Phe Pro Ile Ala Met Arg Leu Glu Arg Val Cys

20 25 30 35
 aaa aaa gat gtt gag atc aat ggg atg ttc att ccc aaa ggg gtg gtg 262
 Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys Gly Val Val
 40 45 50

 gtg atg att cca agc tat gct ctt cac cgt gac cca aag tac tgg aca 310
 Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys Tyr Trp Thr
 55 60 65

 gag cct gag aag ttc ctc cct gaa aggtacaagg cccctgggaa gggagccctc 364
 Glu Pro Glu Lys Phe Leu Pro Glu
 70 75

 cctgaaccag cctggttcaa gcatattctg cctctcttaa tctacaggac agtcatgtgg 424

 ttgtataatt atttgcttgt atttttatat ttagagattt tttaatcat caaattgatt 484

 attgtcacac ttacaaacc atagactaga aaaaagaaaa ctacagtcac ccacaattcc 544

 aacaacttac gatgaaggtc atcagttatg 574

<210> 155
 <211> 75
 <212> PRT
 <213> Homo sapiens

<400> 155
 Ala Pro Pro Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met
 1 5 10 15

 Val Val Asn Glu Met Leu Arg Leu Phe Pro Ile Ala Met Arg Leu Glu
 20 25 30

 Arg Val Cys Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys
 35 40 45

 Gly Val Val Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys
 50 55 60

 Tyr Trp Thr Glu Pro Glu Lys Phe Leu Pro Glu
 65 70 75

<210> 156
 <211> 574
 <212> DNA
 <213> Homo sapiens

<400> 156
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 aagttaattc aaaatctcaa ttatccaaa tctgtttcgt tctttccagg caccaccac 120
 ctatgatact gtgctacaga tggagtatct tgacatgggtg gtgaatgaaa cactcagatt 180
 attcccaatt gctatgagac ttgagagggt ctgcaaaaaa gatgttgaga tcaatgggat 240
 gtgcattccc aaaggggtgg tggatgatgat tccaagctat gctcttcacc gtgacccaaa 300
 gtactggaca gagcctgaga agttcctccc tgaaggtac aaggcccctg ggaagggagc 360
 cctccctgaa ccagcctggt tcaagcatat tctgcctctc ttaactaca ggacagtcac 420
 gtggttgat aattattgc tigtatttt atatttagag attttttaa tcatcaaatt 480
 gattattgtc acatttaca aaccatagac tagaaaaaag aaaactacag tcatccacaa 540
 ttccaacaac ttacgatgaa ggtcatcagt tatg 574

<210> 157
 <211> 574
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (110)..(334)

<400> 157
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 aagttaattc aaaatctcaa ttatccaaa tctgtttcgt tctttccag gca cca ccc 118
 Ala Pro Pro
 1
 acc tat gat act gtg cta cag atg gag tat ctt gac atg gtg gtg aat 166
 Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met Val Val Asn
 5 10 15
 gaa acg ctc aga tta ttc cca att gct atg aga ttt gag agg gtc tgc 214
 Glu Thr Leu Arg Leu Phe Pro Ile Ala Met Arg Phe Glu Arg Val Cys
 20 25 30 35
 aaa aaa gat gtt gag atc aat ggg atg ttc att ccc aaa ggg gtg gtg 262
 Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys Gly Val Val
 40 45 50

gtg atg att cca agc tat gct ctt cac cgt gac cca aag tac tgg aca 310
 Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys Tyr Trp Thr
 55 60 65

 gag cct gag aag ttc ctc cct gaa aggtacaagg ccctgggaa gggagccctc 364
 Glu Pro Glu Lys Phe Leu Pro Glu
 70 75

 cctgaaccag cctggttcaa gcatattctg cctctcttaa tctacaggac agtcatgtgg 424

 ttgtataatt atttgcttgt atttttatat ttagagattt tttaatcat caaattgatt 484

 attgtcacac ttacaaacc atagactaga aaaaagaaaa ctacagtcac ccacaattcc 544

 aacaacttac gatgaaggtc atcagttatg 574

<210> 158
 <211> 75
 <212> PRT
 <213> Homo sapiens

<400> 158
 Ala Pro Pro Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met
 1 5 10 15

 Val Val Asn Glu Thr Leu Arg Leu Phe Pro Ile Ala Met Arg Phe Glu
 20 25 30

 Arg Val Cys Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys
 35 40 45

 Gly Val Val Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys
 50 55 60

 Tyr Trp Thr Glu Pro Glu Lys Phe Leu Pro Glu
 65 70 75

<210> 159
 <211> 574
 <212> DNA
 <213> Homo sapiens

<220>

<221> CDS

<222> (110)..(334)

<400> 159

cagtatgagt tagtctctgg agctcctaactttcattag tactgcatgg actgagtaa 60

aagttaattc aaaatctcaa ttatccaaa tctgttctgt tctttccag gca cca ccc 118

Ala Pro Pro

1

acc tat gat act gtg cta cag atg gag tat ctt gac atg gtg gtg aat 166

Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met Val Val Asn

5

10

15

gaa acg ctc aga tta ttc cca att gct atg aga ctt gag agg gtc tgc 214

Glu Thr Leu Arg Leu Phe Pro Ile Ala Met Arg Leu Glu Arg Val Cys

20

25

30

35

aaa aaa gat gtt gag atc aat ggg atg ttc att ccc aaa ggg gtg gtg 262

Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys Gly Val Val

40

45

50

gtg atg att cca agc tat gct ctt cac cgt gac cca aag tac tgg aca 310

Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys Tyr Trp Thr

55

60

65

gag cct gag aag ttc ctc ctt gaa aggtacaagg ccctgggaa gggagccctc 364

Glu Pro Glu Lys Phe Leu Leu Glu

70

75

cctgaaccag cctggttcaa gcatattctg cctctcttaa tctacaggac agtcatgtgg 424

ttgtataatt atttgcttgt atttttatat ttagagattt tttaatcat caaattgatt 484

attgtcacac ttacaaacc atagactaga aaaaagaaaa ctacagtcac ccacaattcc 544

aacaacttac gatgaaggtc atcagttatg

574

<210> 160

<211> 75

<212> PRT

<213> Homo sapiens

<400> 160

Ala Pro Pro Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met

1 5 10 15
 Val Val Asn Glu Thr Leu Arg Leu Phe Pro Ile Ala Met Arg Leu Glu
 20 25 30
 Arg Val Cys Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys
 35 40 45
 Gly Val Val Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys
 50 55 60
 Tyr Trp Thr Glu Pro Glu Lys Phe Leu Leu Glu
 65 70 75

<210> 161
 <211> 574
 <212> DNA
 <213> Homo sapiens

<400> 161
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 aagttaattc aaaatctcaa ttatccaaa tctgtttcgt tctttccagg caccaccac 120
 ctatgatact gtgctacaga tggagtatct tgacatgggtg gtgaatgaaa cgtcagatt 180
 attcccaatt gctatgagac ttgagagggt ctgcaaaaaa gatgttgaga tcaatgggat 240
 gtccattccc aaaggggtgg tggatgatgat tccaagctat gctcttcacc gtgacccaaa 300
 gtactggaca gagcctgaga agttcctccc tgaaagggtac aaggctcctg ggaagggagc 360
 cctccctgaa ccagcctggt tcaagcatat tctgcctctc ttaatctaca ggacagtcat 420
 gtgggtgat aattattgc ttgtattttt atatttagag atttttttaa tcatcaaatt 480
 gattattgtc acactttaca aaccatagac tagaaaaaag aaaactacag tcatccacaa 540
 ttccaacaac ttacgatgaa ggtcatcagt tatg 574

<210> 162
 <211> 411
 <212> DNA
 <213> Homo sapiens

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 ggggtattat gtcattaact ttttaaaaat ctaccaatgt ggaaccagat tcagcaagaa 120
 gaacaaggac aacatagatc cttacatata cacaccctt ggaagtggac ccagaaactg 180
 cattggcatg aggtttgctc tcatgaacat gaaacttgct ctaatcagag tccttcagaa 240
 ctttccttc aaaccttgta aagaaacaca ggtagtcaa tttctataa aaataatgtt 300
 gtattaataa ttctttaac tgagtgggtc gtattttta aaaagaatat gcttgtttaa 360

tcttttacta atttgttctc tgggccaaag aatcaattag gcccattctgt g 411

<210> 163

<211> 288

<212> DNA

<213> Homo sapiens

<400> 163

ggagtgtctc actcactttg atgtatact ttctactttt gtttatttaa tgcttctcaa 60
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agaaaaaccc gttgttctaa aggttgagtc aagggatggc actgtaagtg gagcctgaat 180
tttctaagg acttctgctt tgctcttcaa gaaatctgtg cctgagaaca ccagagacct 240
caaattactt tgtgaataga actctgaaat gaagatgggc ttcacca 288

<210> 164

<211> 288

<212> DNA

<213> Homo sapiens

<400> 164

ggagtgtctc actcactttg atgtatact ttctactttt gtttatttaa tgcttctcaa 60
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agaaaaaccc gttgttctaa aggttgagtc aagggatggc accgtaagtg gagcctgaat 180
tttctaagg acttgggctt tgctcttcaa gaaatctgtg cctgagaaca ccagagacct 240
caaattactt tgtgaataga actctgaaat gaagatgggc ttcacca 288

<210> 165

<211> 236

<212> DNA

<213> Homo sapiens

<220>

<223> r=g or a

<400> 165

ctacaacct ggagacctcc acaactgatg taggacaaaa tgtttctgct ttgaactcta 60
gccttttggc ccagtgggat ttatgaaaag tgccatctct atagctgagg atgaagaatg 120
gaagagatta cratcattgc tgtctccaac cttcaccagt ggaaaactca aggaggtatg 180
aaaataacat gagttttaat aagaaactta aagaatgaat ctggtgggga caggta 236

<210> 166

<211> 379

<212> DNA

<213> Homo sapiens

<220>

<223> r=g or a, y=t or c, s=g or c, k=g or t

<400> 166

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gtacagaaaa cacatcacia aattcattat aaaatgtcac ttactgtccc atgctgggga 120
aagccatgtc cttctgggac tagagtctgc acatttaact atgggtggtg ttgtgtttg 180
tgcttagatg gtcctatca ttgccagta tggagatgtg ttggtgagaa atctgaggcg 240
ggaagcagag acaggcaage ctrtcacctt gaaasagtaa gtagaagcgc agcyatgggk 300
ttctgagctg tcatgaacct ctccagckgc ctgccatgga gctgatattc ctgctgttg 360
gttattccag tgaccagac                                     379
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<210> 167

<211> 431

<212> DNA

<213> Homo sapiens

<220>

<223> r=g or a

<400> 167

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cccagtgtac ctctgaattg cttttctatt cttttccctt agggatttga gggcttcaact 60
tagatttctc ttcatctaaa ctgtgatgcc ctacattgat ctgatttacc taaaatgtct 120
ttctctctct ttcagctctg tccgatctgg agctcgtggc ccaatcaatt atctttattt 180
ttgctggcta tgaaaccacg agcagtgttc tctccttcat tatgtatgaa ctggccactc 240
accctgatgt ccagcagaaa ctgcaggagg aaattgatgc agttttacc aataaggtga 300
gtggatgrta catggagaag gagggaggag gtgaaacctt agcaaaaatg cctcctcacc 360
acttccagg agaatttta taaaagcat aatcactgat tctttcactg actctatgta 420
ggaaggtct g                                     431
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<210> 168

<211> 574

<212> DNA

<213> Homo sapiens

<220>

<223> y=t or c, r=g or a

<400> 168

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cagtatgagt tagtctctgg agctcctaact acttcattag tactgcatgg actgagttaa 60
aagttaattc aaaatctcaa ttatccaaa tctgttcgt tctttccagg caccaccac 120
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ctatgatact gtgctacaga tggagtatct tgacatgggtg gtgaatgaaa yrctcagatt 180
attcccaatt gctatgagay ttgagagggt ctgcaaaaaa gatgttgaga tcaatgggat 240
gttcattccc aaaggggtgg tggatgatgat tccaagctat gctcttcacc gtgacccaaa 300
gtactggaca gagcctgaga agttcctccy tgaaagggtac aaggyccctg ggaagggagc 360
cctccctgaa ccagcctggg tcaagcatat tctgcctctc ttaatctaca ggacagtcac 420
gtgggtgtat aattatttgc ttgtattttt atatttagag atttttttaa tcatcaaatt 480
gattattgtc acactttaca aacctagac tagaaaaaag aaaactacag tcatccacaa 540
ttccaacaac ttacgatgaa ggtcatcagt tatg 574

<210> 169

<211> 411

<212> DNA

<213> Homo sapiens

<220> .

<223> y=t or c

<400> 169

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gaacaaggac aacatagatc cttacatata cacaccctt ggaagtggac ccagaaactg 180
cattggcatg aggtttgctc tcatgaacat gaaacttgct ctaatcagag tccttcagaa 240
cttctccttc aaaccttgta aagaacaca ggtagtcaa tttctataa aaataatgtt 300
gtattaataa ttcttttaac tgagtgggtc gtattttta aaaagaatat gcttgtttaa 360
tcttttacta atttgttctc tgggccaaag aatcaattag gcccatctgt g 411

<210> 170

<211> 288

<212> DNA

<213> Homo sapiens

<220>

<223> y=t or c, k=g or t

<400> 170

ggagtgtctc actcactttg atgctatact ttctactttt gttatttaa tgcttctcaa 60
tatgcttggt taactgttgc agatccccc gaaattaagc ttaggaggac ttcttcaacc 120
agaaaaaccc gttgttctaa aggttgagtc aagggtggc acygttaagt gagcctgaat 180
tttctaagg acttckgctt tgctctcaa gaaatctgtg cctgagaaca ccagagacct 240
caaattactt tgtgaataga actctgaaat gaagatgggc ttcacca 288

<210> 171

<211> 30
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(30)

<400> 171
cct gtc acc ttg aaa cac gtc ttt ggg gcc 30
Pro Val Thr Leu Lys His Val Phe Gly Ala
1 5 10

<210> 172
<211> 10
<212> PRT
<213> Homo sapiens

<400> 172
Pro Val Thr Leu Lys His Val Phe Gly Ala
1 5 10

1

41